Abstract

A tunable optical device for adding or dropping one or more channels in a wavelength division multiplexing communication system is disclosed. The tunable optical device comprises one or more filters, wherein at least one filter comprises (a) one or more elastimers and (b) one or more gratings. An elastimer is a polymer that expands and contracts with a change in a voltage applied across the polymer or when a certain wavelength of light is diffracted from or transmitted through the polymer.